

Business performance management in university hospitals: a diagnosis in Brazilian institutions

Evaluación del desempeño empresarial en hospitales universitarios: un diagnóstico en las instituciones brasileñas

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Received august 21th, 2016 / Sent for Modification october 2nd, 2016 / Accepted march 18th, 2017

ABSTRACT

Objectives To investigate whether business performance management practices are used by Brazilian federal university hospitals, and if so, to determine which practices are used and explore characteristics that may be related to their adoption.

Method Descriptive *ex post facto* research on the effects of the studied variables in relation to the technical procedures. Secondary data and survey resources were used.

Results Four hospitals use practices to assess business performance. Three of them stated that they use two different types of practices and that 75 % of university hospitals with at least one business performance management practice also have a strategic plan that includes vision, mission, objectives and long-term operational plans. Among the hospitals that do not use business performance management practices, 55.6 % claim to have strategic planning composed at least of mission, vision and long-term objectives. However, they stated that the entity has no plans to adopt any method.

Conclusions This diagnosis intends to draw the attention of managers and other actors in the field of public health on the possibilities offered by performance evaluation systems to promote administrative improvements in a complex internal scenario with a need for rationalization of hospital costs in order to direct these institutions towards achieving their social mission.

Key Words: Hospital information systems; decision support systems; management; university hospitals; Brazil (*source: MeSH, NLM*).

RESUMEN

Objetivo Investigar si la evaluación del desempeño empresarial es una práctica utilizada por los hospitales federales brasileños, y en caso que haya instituciones que utilicen esta herramienta, verificar cuales prácticas son utilizadas e investigar las posibles características que permiten adoptar las mismas.

Método El estudio utilizó la investigación descriptiva, siendo *ex post facto* en cuanto a los efectos en las variables estudiadas, y con relación a los procedimientos técnicos, se utilizaron datos secundarios y recursos de encuesta.

Resultados Los resultados muestran que cuatro hospitales utilizan prácticas sobre la evaluación del desempeño empresarial; tres de ellos declararon que utilizan dos tipos de prácticas diferentes y que el 75 % de los hospitales universitarios que tienen al menos una práctica de evaluación del desempeño empresarial, también tienen un plan estratégico con visión, misión e objetivos y planes operativos a largo plazo. Entre los hospitales que no tienen prácticas sobre la evaluación del desempeño empresarial, el 55,6 % afirman tener una planificación estratégica compuesta al menos de misión, visión y objetivos a largo plazo. Sin embargo, declararon que la entidad no tiene planes de adoptar ningún método elencado.

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Conclusiones Este diagnóstico pretende llamar la atención a la gerencia y a los funcionarios del campo de la salud pública, sobre las posibilidades que ofrecen los sistemas de evaluación del desempeño de las entidades, para promover mejoras administrativas en un escenario interno complejo, así como la continua necesidad de racionalización de los costos hospitalarios, de forma tal que conduzca estas instituciones a alcanzar su misión social.

Palabras Clave: Sistemas de información en hospital; sistemas de apoyo a decisiones administrativas; hospitales universitarios; Brasil (*fuentes: DeCS, BIREME*).

Article 196 of the Brazilian Constitution states that health is a fundamental right of citizens and a government duty (1). This issue is highly relevant for the population, considering that the surveys conducted by the IBOPE research institute from 1989 to 2010 revealed a growing concern about this industry for more than 20 years into democracy in the country, which coincides with the period during which the current constitution has been in force. While in 1989 the main concern of Brazilians was related to inflation (cited by 57 % of respondents) and health was the second biggest concern (49 % of respondents), in 2010 health was reported by 66 % of respondents as the most serious concern for citizens of the nation (2).

The Unified Health System Performance Index (IDSUS by its acronym in Portuguese) is an indicator used by the Brazilian Ministry of Health to measure the performance of the Unified Health System (SUS by its acronym in Portuguese) in the municipalities regarding care provided to their inhabitants, emphasizing needs such as access to and the effectiveness of primary, hospital and outpatient care, emergencies and urgencies (3). In 2011, this index showed unsatisfactory results in health care services, which were already evident in opinion polls. During this period, the Brazilian public health index scored 5.4 (range 0-10), with less than 2 % of the population living in cities where health care was considered satisfactory and scoring 7.0 and above (4).

Caleman, Moreira & Sanchez (5) state that the difficulties faced by the SUS to achieve the desired performance lead to discussions on the need for increasing funds for this sector and improving the use of limited resources. For this reason, it is necessary to propose management models applicable to health care services that promote savings and improvement in the quality of services offered. Performance management systems, which are described as a group of metrics used to quantify the efficiency and effectiveness of an entity's actions (6) and as tools for aligning management processes to meet strategic goals (7), may have an important role in enabling the changes needed in the management of institutions devoted to public health.

Federal university hospitals are linked to the Ministry of Education (MEC by its acronym in Portuguese) and funded by the Unified Health System, besides being part of the

public health care services. University hospitals are especially unique institutions because they provide services to the population, even in high medical complexity situations, and also develop teaching and research practices while committed to train health professionals (8). The complexity of hospital organizations, along with the need to provide high quality services, ends up making performance management particularly challenging in these organizations (9).

Considering the need for performance management practices in institutions related to public health care services to monitor the satisfactory achievement of their social mission, especially in teaching hospitals where patient care and quality in health professional training should be combined to achieve solutions, this research seeks to find out which business performance management practices are used by Brazilian federal university hospitals. In consequence, this study aims to investigate whether business performance management practices are used by Brazilian federal university hospitals, and if so, to determine which practices are used and explore characteristics that may be related to their adoption.

Ruthes & Cunha (10) emphasize that hospital organizations are complex institutions that have a large number of professionals with different specializations and skills which, in turn, demand adequate coordination of the activities performed and the use of modern administrative systems. Therefore, a hospital institution will only achieve efficiency, efficacy and effectiveness by using modern and innovative administrative tools and features through the use of effective tools.

The importance of studies in university hospitals when dealing with institutions devoted to health care is supported by Bonacim & Araujo (11), who claim that, especially in these organizations, management is highly complex to maintain the high quality of the services provided to the users with limited financial resources, since they not only provide medical care, but also develop teaching and research activities and are a benchmark in technology. With this in mind, conducting this study to detect the current state of the adoption of management control practices in federal university hospitals is reasonable, since these techniques may contribute to the required administrative evolution in bodies providing hospital care to the population.

First, this paper presents the question, research objective, justification and structure of the article. Then, the methodological design adopted for this study is explained, followed by the statement of findings and the discussion.

METHOD

This study used the descriptive research method to present the business performance management practices used by Brazilian federal university hospitals. This is an *ex post facto* research on the effects of the studied variables, and cross-sectional regarding the time dimension. With regard to technical procedures, secondary data analysis and a survey with a quantitative approach were used (12-14).

A self-administered questionnaire was used as a survey instrument, which was included in the Google Docs® platform and submitted to the managers of the listed institutions via e-mail after making adjustments derived from suggestions received through pre-tests done with an accounting student and a professional accountant who are not part of the management team of any federal university hospital).

The research investigated the entire population of active Brazilian Federal University Hospitals (HUF by its acronym in Portuguese), based on information provided by the Brazilian Ministry of Education (15). Of 46 university hospitals listed in the website of the Ministry of Education, only the recently opened University Hospital of the Federal University of Piauí, which is currently hiring professionals, was excluded, for a grand total of 45 university hospitals. The active federal university hospitals are linked to 31 federal universities, and are scattered in the five Brazilian regions as follows: 16 hospitals (35.6 %) in the southeast; 14 hospitals (31.1 %) in the northeast; 7 hospitals (15.6 %) in the south; 5 hospitals in the midwest (11.1 %), and 3 hospitals in the north (6.7 %).

The questionnaire was composed of two sets of questions. The first set (respondent profile) included questions to establish (a) sex; (b) work position; (c) seniority in the institution; (d) management position or additional function and the length of time in this position, and (e) educational attainment. The questions in the second set (performance management systems) sought to identify (a) if the organization adopted some performance management model; (b) if so, which model was adopted; (c) in case of a negative response, if the organization has some plan to adopt it, and (d) if the organization has a strategic planning and/or any of its components. The performance management models presented in the questionnaire were obtained from a literature review (16-19).

Individual respondents for each hospital were selected after being contacted via telephone. Before approach-

ing the respondents, preparation and observance were carried out to create a phone call protocol, designed especially for the research, in order to ensure coherence and balance in each institution. Employees with better conditions to answer the questionnaire satisfactorily were selected, preferably the accountants responsible for the institution (in case the hospital had its own responsible accountant), or the management accountant, responsible for the accounting or financial sector. After finding the potential respondents, the research was exposed, emphasizing on the importance of collaborating with the academia and the institutions, and finally sending the link for the questionnaire by e-mail.

Regarding secondary data, the hospitals that made up the population of this research were grouped considering their size (small, medium or large), aiming to explore this feature to investigate possible relationships between size and the adoption of business performance management models. The classification of hospitals by size was made according to the number of beds; the hospitals considered as small had less than 49 beds, medium-sized hospitals between 50 and 149 beds, and large hospitals more than 150 beds. (20) Table 1 shows the amount of hospitals grouped in each subdivision by size based on the number of beds in November 2012, according to the National Health Facilities Census (CNES by its acronym in Portuguese) (21).

Table 1. University hospitals according to size

Size	Number of beds	Amount of hospitals
Small	0 to 49	6
Medium	50 to 149	13
Large	Above 149	26

Source: Own elaboration adapted from CNES (21)

Most small federal university hospitals were located in the southeast (4 hospitals) and all were linked to the Federal University of Rio de Janeiro (UFRJ by its acronym in Portuguese). With regard to medium-sized hospitals, most were located in the northeast (6 hospitals), with three linked to the Federal University of Rio Grande do Norte (UFRN by its acronym in Portuguese). Finally, large hospitals were mostly located in the southeast (9 hospitals), with four hospitals in the State of Rio de Janeiro, three in Minas Gerais, one in São Paulo and one in Espírito Santo.

Still, it is possible to notice that in all geographic regions of the country there is a greater amount of large hospitals, except for the northern region, which has a hospital for each size level. The three largest federal university hospitals in Brazil, according to the number of beds, are the Hospital de Clínicas de Porto Alegre (773 beds), Hospital São Paulo (662 beds) and the University Hospital of the Federal University of Maranhão (488 beds).

RESULTS

Information collected through the questionnaires applied to federal university hospitals was analyzed using the Statistical Package for Social Sciences (SPSS)[®] software and Microsoft Excel. These results reveal the characteristics of the study sample with respect to respondents in hospitals and the employees who provided information for this research.

Characterization of the analyzed sample and respondents profile

Data were collected hand in hand with federal university hospitals through repeated contact via phone call and e-mail between December 2012 and January 2013. As a result, responses to 13 questionnaires (28.3 %) were obtained. The respondent hospitals, shown in Chart 1, are located in the five Brazilian geographical regions.

The geographic region with the highest proportion of respondents was the midwestern region (60 % of the population), while the southeastern region had the lowest proportion of respondents (12.5 % of population), although the sample was composed mostly of institutions loca-

ted in the southern region (four hospitals). Regarding the size of the respondent hospitals, 2 (33.3 %) were small institutions, 4 (30.8 %) institutions were medium-sized and 7 (26.9 %) institutions were considered large.

The educational attainment of the employees who participated in the study showed that 61.5 % held positions that require higher education preparation (accountant, economist or administrator), while 23.1 % had a position that required high school education (administrative assistant) and 15.4 % held a position that required technical education (accounting technician course). Furthermore, questions about educational attainment showed that 61.5 % of the sample reported a specialization as their highest degree, 23.1 % have an undergraduate degree only, and 15.4 % have a master's degree.

With respect to seniority, 77 % have worked in the organization for a period between 5 and 20 years. About holding a public trust position (management position or additional function), 61.5 % of the respondents claimed to be practicing it at the time of the survey, and 50 % of them reported having worked in a public trust position for a period between 5 and 10 years (Chart 1).

Chart 1. Research sample

Region	University	Hospital
North	Federal University of Pará	Hospital Universitário Bettina Ferro de Souza
Midwest	Federal University of Goiás	Hospital de Clínicas
	Federal University of Mato Grosso	Hospital Universitário Júlio Müller
	University of Brasília	Hospital Universitário
Northeast	Federal University of Rio Grande do Norte	Hospital Universitário Ana Bezerra
	Federal University of Bahia	Hospital Universitário Professor Edgard Santos
	Federal University of Sergipe	Hospital Universitário
South	Federal University of Santa Catarina	Hospital Universitário Professor Polydoro Ernani de São Thiago
	Federal University of Santa Maria	Hospital Universitário
	Federal University of Paraná	Hospital de Clínicas
		Maternidade Victor Ferreira do Amaral
Southeast	Federal University of Espírito Santo	Hospital Universitário Cassiano Antonio Moraes
	Federal University of Juiz de Fora	Hospital Universitário

Performance management practices in the analyzed sample

Among the institutions that reported having business performance management practices, 4 university hospitals reported that they have implemented this management control technique (31 %), while 9 have not implemented any (69 %). Importantly, the 4 federal university hospitals that follow performance management practices in health are large institutions, i.e., they have more than 149 beds. This result may lead to infer that there is a greater need for these management control practices in larger hospital entities presumably because of a greater administrative complexity.

Another important finding is that 75 % of university hospitals that follow at least one business performance management practice also have a strategic plan with vision, mission, long-term goals and long-term operational plans. In this scenario, the definition of a strategy by the entity can be considered as a driving factor for the adoption of performance management practices, as already mentioned in the literature (22-24).

Of the four hospitals that claimed to use business performance management practices, three stated that they use two different business performance management practices in the institution. Table 2 shows the practices used by the organizations according to the information provided by their collaborators.

Regarding business performance management practices that are used concomitantly, an institution declared using the Performance Measurement Questionnaire (PMQ) together with Activity Based Management (ABM); the second institution reported using the Cambridge Performance Measurement Framework (CPMF) together with a satisfaction survey; and the third institution reported using the Balanced Scorecard (BSC) together with a systematic evaluation of existing indicators in the contracts signed with the management units. The remaining institution uses only a performance management practice based on the Performance Measurement Questionnaire (PMQ). Contrary to these results, the literature shows prevalence in the adoption of systems based on the BSC model in public hospitals (25-28).

Table 2. Performance management practices used by federal university hospitals

Performance Management Model	Frequency
Performance Measurement Questionnaire (PMQ)	2
Cambridge Performance Measurement Framework (CPMF)	1
Balanced Scorecard (BSC)	1
Activity-Based Management (ABM)	1
Others	2

By exploring issues related to the federal university hospitals that do not follow any business performance management practice, it is possible to infer that hospitals without performance management practices are found in all groups. Table 3 shows the distribution of these frequencies.

Table 3. University hospitals with performance management practices by size

Size	Number of beds	Hospitals – Sample	Use	Do not use
Small	0 a 49	2	0	2
Medium	50 a 149	4	0	4
Large	Above 149	7	4	3
Total		13	4	9

Among the hospitals that do not use business performance management practices, 55.6 %claim to have strategic planning within the institution composed of, at least, mission, vision and long-term goals. However, when they were asked whether they have plans to implement some performance management system in the future, the respondents stated that the entity has no plans to implement any method listed or not in the questionnaire.

All of this reiterates the influence of size as a factor that can affect the decision on the implementation of business performance management practices such as performance management systems in these organizations, fact that has already been addressed by several authors (29-30).

DISCUSSION

This research aimed at obtaining a diagnosis on the use of business performance management practices in federal university hospitals and, in case they were used, revealing which systems are being implemented by these institutions and exploring features that may help explain the use or not of such techniques. Performance management, a management control technique, is an increasingly used practice in for-profit corporations since the early 1990s, as it may help to improve organizational performance and assist the entity in the implementation of strategies, and also to contribute to encouraging functional behaviors for innovation in employees, focused on strategy and organizational learning.

The recognition of the potential contribution of management practices used by private organizations to improve the performance of public bodies, which is highlighted in the New Public Management movement, encouraged public authorities to turn their attention to these kinds of practices, whose use should be preceded by necessary adjustments to a new culture and a new focus. Said focus is the achievement of the social mission of the public institution rather than the maximization of shareholder health.

State entities include university hospitals, which are especially complex institutions since they involve multiple specialties within a single organization, mainly focused on providing quality care to patients, maintaining a legacy reference on the use of state-of-the-art technology in medical procedures and providing trained health care professionals to the society. This operational complexity, along with the need to maintain financial sustainability in the face of increasingly higher costs due to new technologies and scarce financial resources provided by the State, justify the adoption of business performance management systems in these institutions.

Research results reveal that the implementation of performance management practices in Brazilian federal university hospitals—which are entities controlled by the Brazilian Ministry of Education, linked to federal universities, and mostly funded by the Unified Health System to deal with medium and high medical complexity situations—is still not a fully widespread practice. Of the 13 entities included in this research sample, four used some performance evaluation practice, a result that should be maintained in the short-term, since the entities that have no performance management system do not have concrete plans for the future to implement it.

Evidence showed that the most commonly used practice in this sample is Performance Measurement Questionnaire (PMQ), with six different methods of performance manage-

ment (including BSC) identified, since three entities reported using two practices concomitantly. Whereas information was collected through a self-administered questionnaire, conducting case studies is highly advised to promote the validation of the reported models, in other words, to verify if the practices adopted by institutions, based on the responses provided, match the assumptions presented by the basic performance management model mentioned above.

Regarding the observed characteristics that may explain the implementation of performance management practices in these entities, the most outstanding may be the issue of the size of organizations. The four entities that reported using performance management practices are considered large hospital organizations, which suggests that university hospitals with a higher number of beds are more complex administratively and have a greater need to implement a management control practice, such as performance management, in order to monitor the results achieved by the organization in relation to compliance with its social mission.

The second aspect observed among entities that implement performance management practices is the existence of strategic planning. As mentioned above, one of the main functions of a performance management system is to assist managers to monitor and lead the entity within the scope of the strategy. Such influence in the results achieved is observed in the fact that 75 % of respondents report various elements related to strategic plans in their management performance, including the establishment of mission, vision, long-term goals and long-term operational plans.

Still on strategic planning, 55.6 % of federal university hospitals that do not use any performance management practice have a strategic plan containing, at least, mission, vision and long-term goals. In consequence, these institutions have the opportunity to consider the feasibility of using a performance management practice to support the development of its strategy within the organization, bearing in mind the contributions listed in the academic literature because of said implementation.

As already mentioned, the main limitation of this research is the composition of a non-random sample, which does not allow extrapolating the results to the entire population, thus restricted only to the observed reality. Further data collection from other federal university hospitals is suggested to obtain a sample capable of providing generalization through statistical methods.

Therefore, this diagnosis has intrinsically intended to draw the attention of managers and other actors in the field of public health, specifically those involved with federal university hospitals, to the possibilities offered by evaluation systems to improve management in these ins-

titutions. Management control techniques promote administrative improvements, as demanded by the population and other stakeholders, for the activities carried out by these organizations, in the context of a complex internal scenario and the continuing need for rationalization of hospital costs to reach their social mission.

Moreover, undertaking a diagnosis process in these entities in particular aims to encourage the expansion of the Accounting research field. Besides conducting a case study for validation of performance management models reported by the respondents on behalf of university hospitals, it was possible to discover even more factors than those included in this study to explore determinants in the implementation of these practices.

It is clear that such institutions have a leading social role because they are responsible for dealing with the most precious good for any person, and also participate decisively in the training of professionals associated with the care of said good: life. In a context in which such organizations are portrayed by the Brazilian press through disgraceful scenes —such as the care of patients in hallways of hospitals, long waiting periods for access to serious illness care and lack of professionals, equipment and medicines—, professionals and academics of the accounting area cannot be considered as outsiders since they have the necessary tools to contribute significantly to the improvement of this scenario ♦

Conflict of interest: None.

REFERENCES

1. Brazil. Constituição da República Federativa do Brasil: promulgada em 5 de outubro de 1988 [Internet]. Available in: <https://goo.gl/wVz7Pt>. Accessed august 2012.
2. Ibope. Em 23 anos de democracia, brasileiros mudam de opinião sobre os principais problemas do país [Internet]. Available in: <https://goo.gl/zY6Wqj>. Accessed september 2012.
3. Portal da Saúde. IDSUS: Índice de desempenho do sistema único de saúde [Internet]. Available in: <https://goo.gl/vSLesM>. Accessed July 2012.
4. Nalon T. Índice do governo dá nota 5,4 à saúde pública no Brasil [Internet]. Available in: <https://goo.gl/kc81rg>. Accessed March 2012.
5. Caleman G, Moreira ML, Sanchez MC. Auditoria, controle e programação de serviços de saúde. 5th Edition. São Paulo: Faculdade de Saúde Pública da Universidade de São Paulo; 1998.
6. Neely A, Gregory M, Platts K. Performance measurement system design: a literature review and research agenda. *Intern J Oper Prod Manag.* 1995; 15(4):80-116.
7. Ittner CD, Larcker DF, Randall T. Performance implications of strategic performance measurement in financial services firms. *Account Organiz Soc.* 2003; 28(7-8):715-741.
8. Marinho A. Hospitais universitários: indicadores de utilização e análise de eficiência. Instituto de Pesquisa Econômica Apli-

- cada – IPEA 2001, Textos para discussão. Rio de Janeiro. <https://goo.gl/FGocfg>. Accessed august 2012.
9. Souza AA, Rodrigues LT, Lara CO, Guerra M, Pereira CM. Indicadores de desempenho econômico-financeiro para hospitais: um estudo teórico. *Rev Adm Hosp Inov Saúde*. 2009; 3:44-55.
 10. Ruthes RM, Cunha ICKO. Os desafios da administração hospitalar na atualidade. *Rev Adm Saúde*. 2007; 9(36):93-102.
 11. Bonacim CAG, Araujo AMP. Avaliação de desempenho econômico-financeiro dos serviços de saúde: os reflexos das políticas operacionais no setor hospitalar. *Cienc Saúde Colet*. 2011; 16(1):1055-1068.
 12. Cooper DR, Schindler PS. Métodos de pesquisa em administração. 7th Edition. Porto Alegre: Bookman; 2003.
 13. Gil AC. Como elaborar projetos de pesquisa. 4th Edition. Sao Paulo: Atlas; 2002.
 14. Gil AC. Métodos e técnicas de pesquisa social. 6th Edition. Sao Paulo: Atlas; 2009.
 15. MEC – Ministério da Educação. Hospitais universitários [Internet]. Available in: <https://goo.gl/qFiDLr>. Accessed august 2012.
 16. Epstein MJ, Manzoni JF. The Balanced Scorecard and Tableau de Bord: translating strategy into action. *Manag Account*. 1997; 79(2):28-36.
 17. Smith RFI. Focusing on public value: Something new and something old. *Aust J Publ Admin*. 2004; 63(4):68-79.
 18. Moullin M, Soady J, Skinner J, Price C, Cullen J, Gilligan C. Using the Public Sector Scorecard in public health. *Intern J Healthc Qualit Assur*. 2007; 20(4):281-289.
 19. Taticchi P, Tonelli F, Cagnazzo L. Performance measurement and management: a literature review and a research agenda. *Meas Bus Excell*. 2010; 14(1):4-18.
 20. Ministério da Saúde. PNASS: Programa Nacional de Avaliação de Serviços de Saúde [Internet]. Available in: <https://goo.gl/YFeXSd>. Accessed january 2013.
 21. CNES – Cadastro Nacional de Estabelecimentos de Saúde [Internet]. Available in: <https://goo.gl/ap14M5>. Accessed december 2012.
 22. Malmi T, Brown DA. Management control systems as a package - opportunities, challenges and research directions. *Manag Account Res*. 2008; 19(4):287-300.
 23. Bortoluzzi SC, Ensslin SR, Ensslin L, Vicente EFR. Práticas de avaliação de desempenho organizacional em pequenas e médias empresas: investigação em uma empresa de porte médio do ramo moveleiro. *Rev Prod Online*. 2010; 10(3):551-576.
 24. Franco-Santos M, Lucianetti L, Bourne M. Contemporary performance measurement systems: a review of their consequences and a framework for research. *Manag Account Res*. 2012; 23(2):79-119.
 25. Kollberg B, Elg M. The practice of the balanced scorecard in health care services. *Internat J Product Perform Manag*. 2011; 60(5):427-445.
 26. Bisbe J, Barrubés J. The Balanced Scorecard as a management tool for assessing and monitoring strategy implementation in health care organizations. *Rev Esp Cardiol*. 2012; 65(10):919-927.
 27. Grigoroudis E, Orfanoudaki E, Zopounidis C. Strategic performance measurement in a healthcare organisation: a multiple criteria approach based on balanced scorecard. *Omega*. 2012; 40(1):104-119.
 28. Quesado PR, Guzmán BA, Rodrigues LL. El Cuadro de Mando Integral como herramienta de gestión estratégica en el sector sanitario portugués. *Contab Vista Rev*. 2012; 23(2):15-59.
 29. Chenhall RH. Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Account Organiz Soc*. 2003; 28(2-3):127-168.
 30. Davila A, Foster G. Management control systems in early-stage startup companies. *Account Rev*. 2007; 82(4):907-937.

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